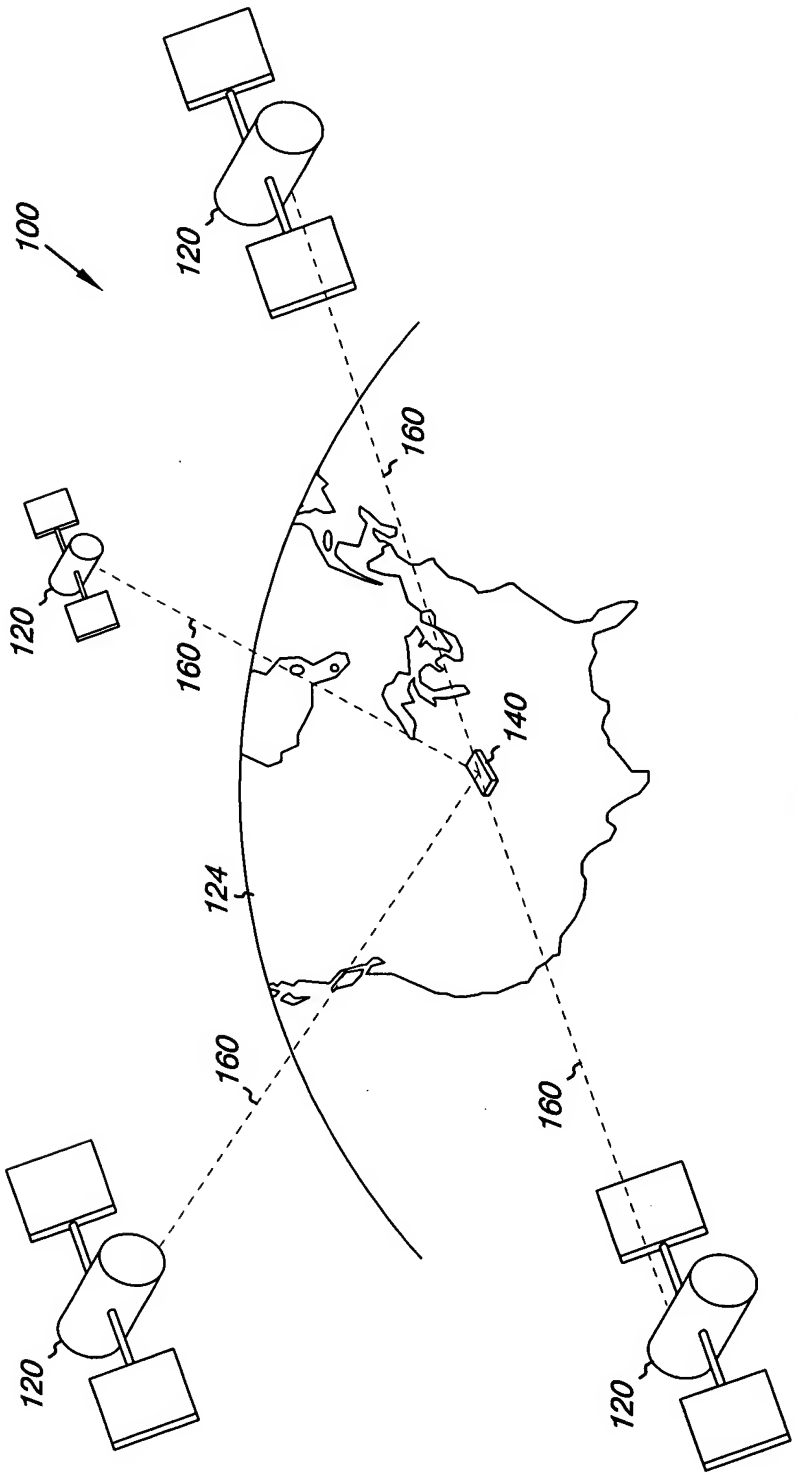

Fig. 1

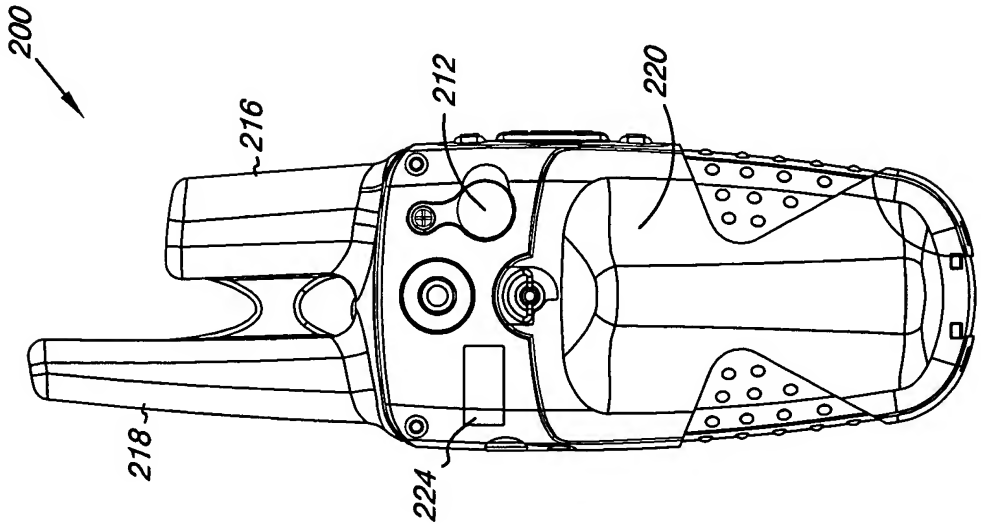

Fig. 2B

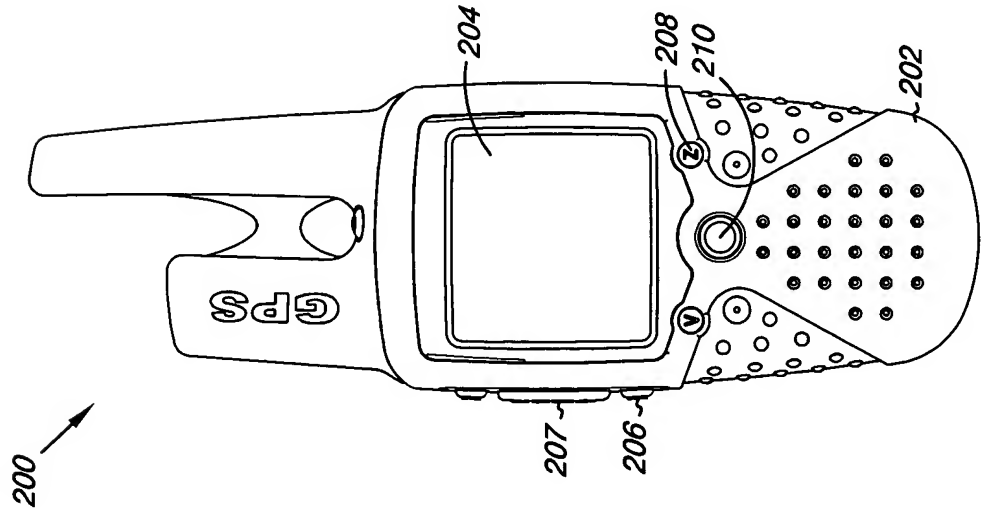

Fig. 2A

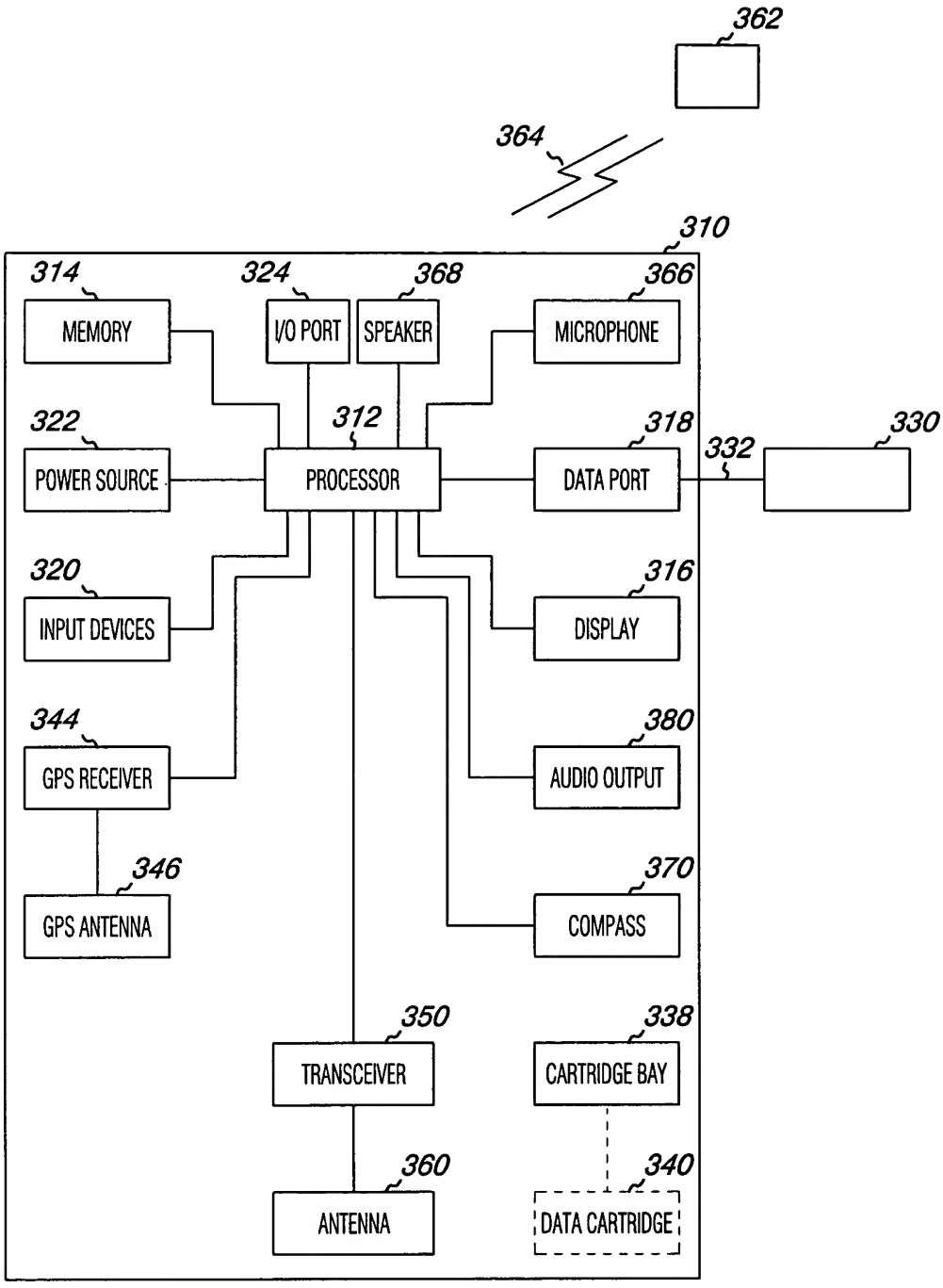
362
364
310
314
MEMORY
324
I/O PORT
368
SPEAKER
366
MICROPHONE
322
POWER SOURCE
312
PROCESSOR
318
DATA PORT
332
330
320
INPUT DEVICES
316
DISPLAY
344
GPS RECEIVER
380
AUDIO OUTPUT
346
GPS ANTENNA
370
COMPASS
350
TRANSCEIVER
338
CARTRIDGE BAY
360
ANTENNA
340
DATA CARTRIDGE

Fig. 3

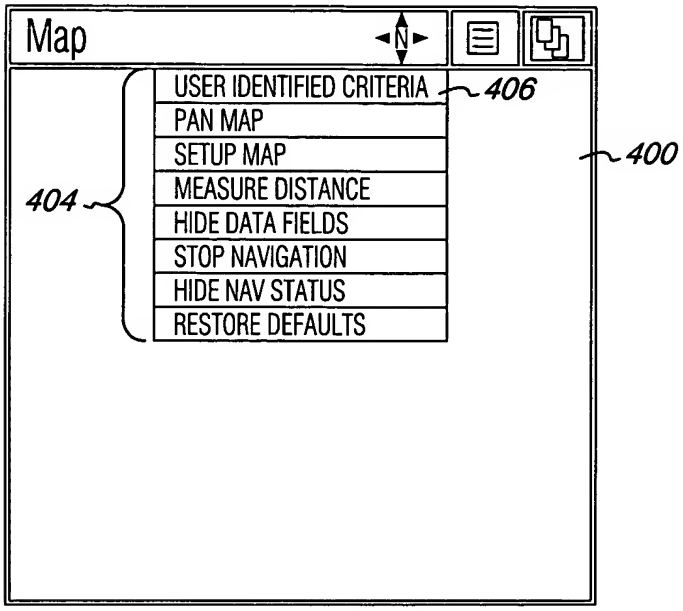
Map
N
USER IDENTIFIED CRITERIA
406
PAN MAP
SETUP MAP
MEASURE DISTANCE
HIDE DATA FIELDS
STOP NAVIGATION
HIDE NAV STATUS
RESTORE DEFAULTS
404
400

Fig. 4A

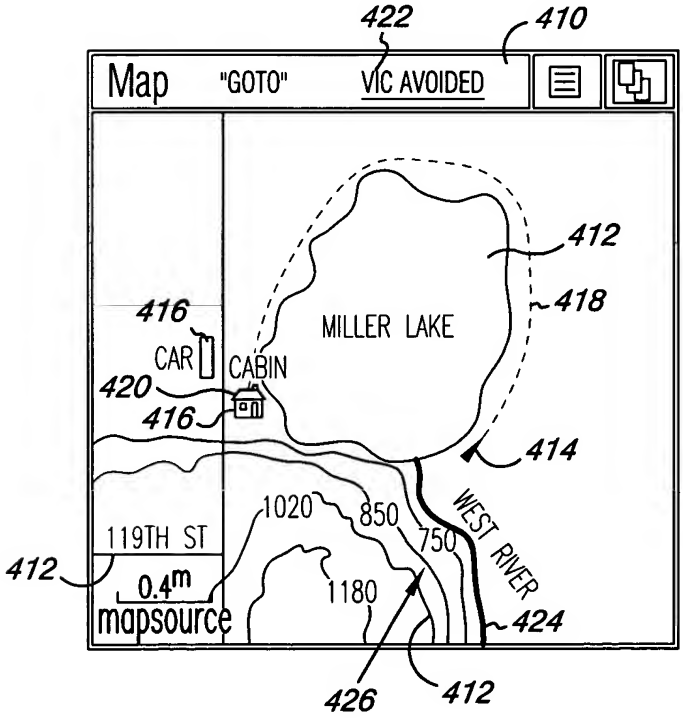
422
410
Map
"GOTO"
VIC AVOIDED
412
418
MILLER LAKE
416
CAR
CABIN
420
416
414
1020
850
750
WEST RIVER
119TH ST
412
0.4m
mapsource
1180
424
426
412

Fig. 4B

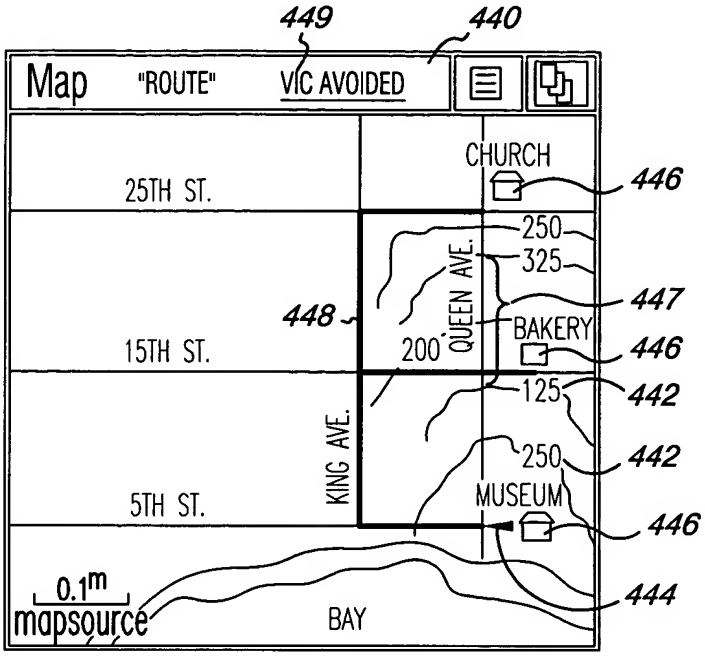
449
440
Map
"ROUTE"
VIC AVOIDED
CHURCH
446
25TH ST.
250
325
QUEEN AVE.
447
448
BAKERY
15TH ST.
200
446
125
442
KING AVE.
250
442
MUSEUM
5TH ST.
446
0.1m
mapsource
BAY
444

Fig. 4C

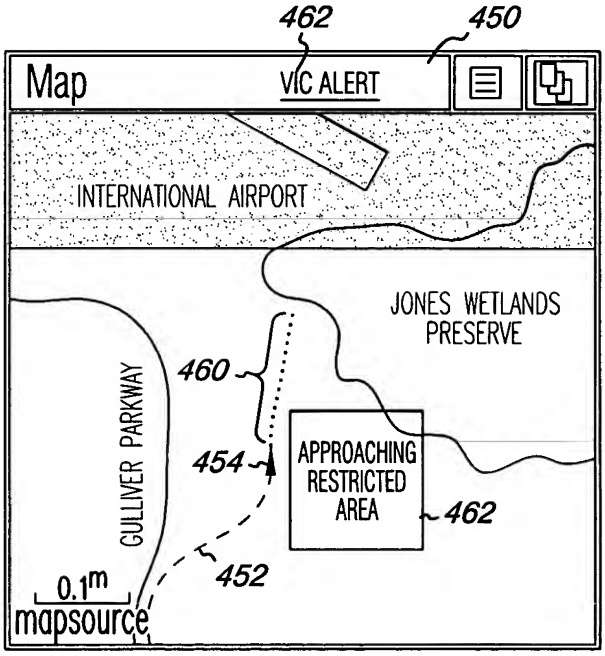
462
450
Map
VIC ALERT
INTERNATIONAL AIRPORT
JONES WETLANDS
PRESERVE
460
GULLIVER PARKWAY
454
APPROACHING
RESTRICTED
AREA
462
452
0.1m
mapsource

Fig. 4D

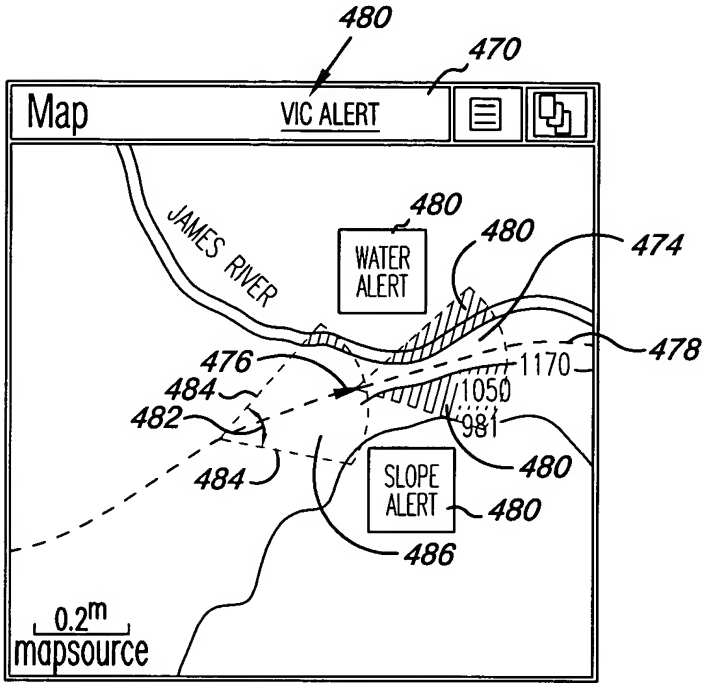
480
470
Map
VIC ALERT
JAMES RIVER
480
WATER ALERT
480
474
478
476
1170
484
1050
482
981
480
484
SLOPE ALERT
480
486
0.2m
mapsource

Fig. 4E

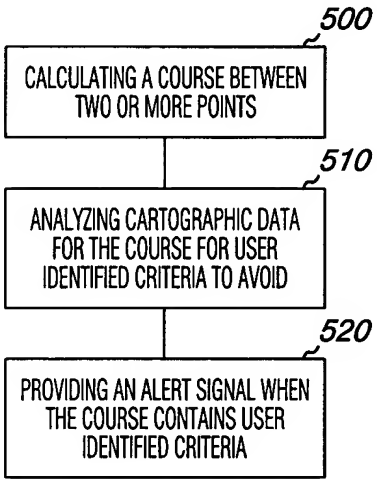
500
CALCULATING A COURSE BETWEEN TWO OR MORE POINTS
510
ANALYZING CARTOGRAPHIC DATA FOR THE COURSE FOR USER IDENTIFIED CRITERIA TO AVOID
520
PROVIDING AN ALERT SIGNAL WHEN THE COURSE CONTAINS USER IDENTIFIED CRITERIA

Fig. 5

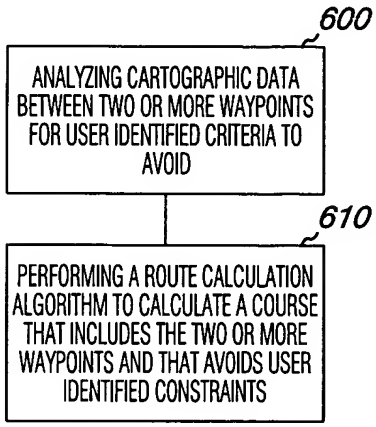
600
ANALYZING CARTOGRAPHIC DATA BETWEEN TWO OR MORE WAYPOINTS FOR USER IDENTIFIED CRITERIA TO AVOID
610
PERFORMING A ROUTE CALCULATION ALGORITHM TO CALCULATE A COURSE THAT INCLUDES THE TWO OR MORE WAYPOINTS AND THAT AVOIDS USER IDENTIFIED CONSTRAINTS

Fig. 6

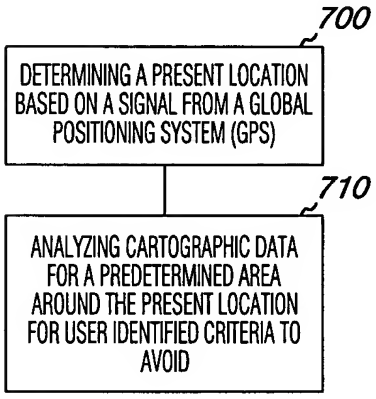
700
DETERMINING A PRESENT LOCATION BASED ON A SIGNAL FROM A GLOBAL POSITIONING SYSTEM (GPS)
710
ANALYZING CARTOGRAPHIC DATA FOR A PREDETERMINED AREA AROUND THE PRESENT LOCATION FOR USER IDENTIFIED CRITERIA TO AVOID

Fig. 7

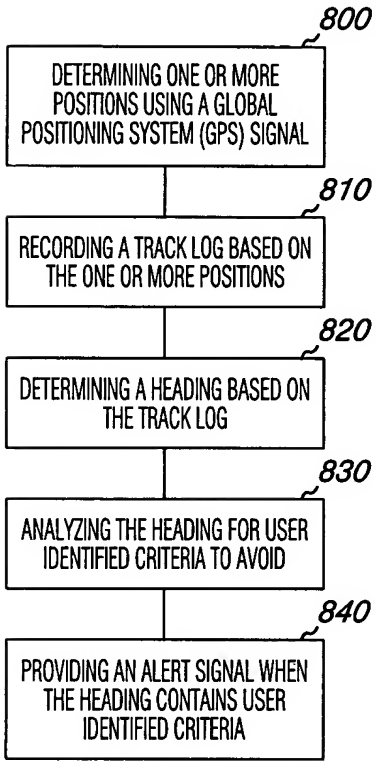
800
DETERMINING ONE OR MORE POSITIONS USING A GLOBAL POSITIONING SYSTEM (GPS) SIGNAL
810
RECORDING A TRACK LOG BASED ON THE ONE OR MORE POSITIONS
820
DETERMINING A HEADING BASED ON THE TRACK LOG
830
ANALYZING THE HEADING FOR USER IDENTIFIED CRITERIA TO AVOID
840
PROVIDING AN ALERT SIGNAL WHEN THE HEADING CONTAINS USER IDENTIFIED CRITERIA

Fig. 8